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ABSTRACT

A study sought to determine if there were significant relationships among preservice teachers' learning style, attitude toward reading, composite score on the American College Test (ACT), declared major, high school grade point average, vocabulary score, and reading comprehension score in predicting performance in a basic skills course in reading instruction, as measured by four criterion-referenced tests. Subjects for the study were 70 preservice teachers enrolled in a basic skills course in reading instruction at a Mississippi university. Analyses of study data revealed five predictor models for achievement on individual scores and the summative score from four criterion-referenced tests. Vocabulary was the number one predictor for four of the five models, and reading comprehension was the number one predictor for one of the models. An examination of subscales associated with learning style revealed both positive and negative significant correlations with achievement in a basic skills course in reading instruction depending on the variables. Declared major and ACT scores and attitude toward reading were all positively correlated with some of the tests but not considered significant in the best predictor set. The study also includes eight tables and further discussion of results. (JMK)

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LEARNING STYLE, ACHIEVEMENT, APTITUDE, AND ATTITUDINAL VARIABLES RELATED TO PRESERVICE TEACHERS' PERFORMANCE ON CRITERION-REFERENCED TESTS IN READING

Presented To The

MID-SOUTH EDUCATIONAL RESEARCH ASSOCIATION

By

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November 16-18, 1983

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The mastery of specialized pedagogical skills is fundamental to the educational preparation of future reading teachers. In a basic skills course criterion-referenced tests are significant in evaluating the preservice reading teacher's knowledge and performance, as well as useful in evaluating the effectiveness of the course itself. Furthermore, such tests can aid the actual course planning as well. However, the preservice teacher's performance on criterion-referenced tests in reading may be affected by factors other than classroom training and related academic experiences (Astin, 1971; Boclair, 1980, Borup, 1971). Such variables as learning style, prerequisite knowledge, attitude, and level of reading mastery may have an impact on teacher performance.

Educators can no longer afford to assume that all students will learn through whatever strategy the teacher chooses to use. Learning styles, in particular, have dominated the interest of many educators (Canfield, 1980; Dunn, 1978; Gregorc, 1979; Hill, 1971; Kolb, 1981; Reckinger, 1979). Learning style is of special interest because individuals have preferred ways of analyzing and synthesizing all that they see, remember, and think about in specific educational settings (Messick & Associates, 1976). Consequently, individuals differ in style, rate, and overall quality of learning. The style of learning also influences teacher and pupil interaction and emphasizes the variety of ways in which individuals may differ

from one another. Conceptually, people of varying ages and intellectual capacities learn differentially. Therefore, selected methods of instruction are effective with some students while being ineffective with others (Dunn & Dunn, 1979; Emmer, 1974; Turner, 1979; Young, 1977).

As a result of investigating the prediction of performance on criterion-referenced tests in reading as a function of the contributions of selected variables, a competency model may be developed. Such a model can establish a hierarchy of variables which may be used to assess teacher effectiveness at each stage of preparation and performance. Additionally, the model can ultimately promote more stringent teacher preparation standards and insure tighter quality control measures (Schalock, 1979).

Statement of the Problem

The problem was to determine if there are significant relationships among preservice teachers' learning style, attitude toward reading, composite score on the American College Test, declared major, high school grade point average, vocabulary score, and reading comprehension score in predicting performance in a basic skills course in the teaching of reading as measured by four criterion-referenced tests.

Questions to be Answered

The following research questions were investigated:

1. What correlation, if any, will be found between each of the following variables and achievement in a basic skills course in the teaching of reading as measured by four criterion-referenced

tests: (a) learning style as measured by Canfield's Learning Styles Inventory; (b) attitude toward reading as measured by the Rhody Secondary Reading Attitude Assessment; (c) composite score on the American College Test; (d) declared major (elementary education, special education, or other majors specializing within the College of Education); (e) high school grade point average; (f) reading comprehension score as measured by The Nelson-Denny Reading Test, Form C (1973); and (g) vocabulary score as measured by The Nelson-Denny Reading Test , Form C (1973)?

2. What combination of the variables will serve as the best predictors of achievement in a basic skills course in the teaching of reading as measured by four criterion-referenced tests?

3. What combination of the variables will serve as the best predictors of achievement in a basic skills course in the teaching of reading as measured by the total score obtained from the four criterion-referenced tests?

Definition of Terms

The following operational definitions were used in the study:

1. Learning Styles: Learning Style refers to three categories which are Conditions, Content, and Mode. These categories consist of a total of 16 subscales that contribute to adequate adjustment to the teaching-learning environment. These subscales focus on factors that affect learning (Canfield, 1980).

2. Competency Model: A competency model is a decision-making tool that indicates the main capabilities required to perform in the teaching of reading (McLagan, 1980).

3. Criterion-Referenced Test: Criterion-referenced test refers to four major tests: Test I on linguistic-cognitive models and reading readiness; Test II on approaches to teaching reading; Test III on word recognition skills; and Test IV on comprehension skills and research/study skills.

4. Declared major: The declared major is the selected area of teacher training consisting of specialized courses in elementary education, special education, and other majors within the College of Education that prepare the preservice teacher for effectiveness in the chosen area. Major is coded in a dummy variable format (10 = elementary education, 01 = special education, and 00 = other majors).

5. High School Grade Point Average: High school grade point average is an average scholastic score indicating success in academics with emphasis on the high school (Good, 1973). The average is computed according to the following scale: A = 4 points, B = 3 points, C = 2 points, D = 1 point, F = 0 points.

6. Mastery of Content: Mastery of content is exemplified through the performance on four criterion-referenced tests reflecting competencies in a basic skills course in the teaching of reading including linguistic-cognitive models and reading readiness, approaches to teaching reading, word recognition skills, comprehension skills, and research/study skills (Artley, 1978).

7. Prerequisite Knowledge: Prerequisite knowledge constitutes the cognitive structure that allows one to understand visual information that comes through the eye when reading (Smith, 1978).

8. Preservice Teacher: A preservice teacher is an undergraduate student enrolled in the field of teacher education in a university setting.

Measuring Instruments

The following instruments were utilized in this study: Learning Styles Inventory, American College Test, Rhody Secondary Reading Attitude Assessment, The Nelson-Denny Reading Test, Form C (1973), and four criterion-referenced tests in a basic skills course in the teaching of reading.

Procedure for Collection of Data

Access to student records was secured upon permission from the Dean of Records and Registration at the university where the study was conducted. It was requested that each preservice teacher enrolled in the basic skills course in the teaching of reading sign human subject release forms for participation in the study. These forms were secured in the initial phase of the study. Each student's transcript was examined in the Office of the Registrar. High school grade point average, composite score on the American College Test, and major were recorded from each transcript. The Rhody Secondary Reading Attitude Assessment, The Nelson-Denny Reading Test, Form C (1973), and the Learning Styles Inventory were administered in a group setting within the first month of classes during the spring semester of 1983. The four criterion-referenced tests were administered periodically throughout the semester with Test IV being the final examination.

The Pearson product-moment correlation coefficient and stepwise multiple regression were the statistical techniques utilized in the study. A relationship was considered significant at the .05 level. The design was descriptive and correlative ex post facto in format.

Selection and Setting of Subjects

The subjects utilized in this study consisted of 70 preservice teachers majoring in elementary education, special education, and other specialized majors within the College of Education. These subjects completed the basic skills course in the teaching of reading, which was the first in a series of three methods courses for elementary and special education majors at a land-grant university in Mississippi during the spring semester of 1983.

The course syllabi for the basic skills reading course presented four major objectives: (1) to acquaint the students with the theoretical rationale of the reading process: (2) to develop recognition of and proficiency in the major skill areas; (3) to survey significant approaches to reading instruction; and (4) to introduce teaching methodology of the reading skills.

Findings

This study's findings indicated the following results:

1. Significant correlations existed among achievement on individual and total scores from the four criterion-referenced reading tests for preservice teachers. These significant correlations existed

with the predictor variables of attitude toward reading, composite score on the American College Test, declared major, high school grade point average, reading comprehension score, vocabulary score, and nine learning style variables. These learning style variables included the variables of working with things and working with people as content of learning, listening and iconics as modes of learning, and clear organization, detailed information on assignments, working with peers, setting one's own goals, and working independently as conditions of learning.

A significant positive correlation existed between achievement on the criterion-referenced tests and the predictor variables of attitude toward reading, composite score on the American College Test, declared major, high school grade point average, reading comprehension score, vocabulary score, as well as the five learning style variables of working with things as content of learning, iconics as a mode of learning, and setting one's own goals, working independently, and working with peers as conditions of learning. A significant negative correlation existed between achievement on the criterion-referenced tests and the four learning style variables of working with people as a content of learning, listening as a mode of learning, and clear organization and detailed information on assignments as conditions of learning.

2. The predictor set of variables that was considered most significant in understanding linguistic-cognitive models and reading readiness in Test I included reading comprehension score, vocabulary score, and the learning style variable of reading as a mode of learning. These variables together explained 52.61 percent of the variation in achievement.

3. The predictor set of variables that was considered most significant in understanding approaches to teaching reading in Test II included vocabulary score and high school grade point average. These variables together explained 35.18 percent of the variation in achievement.

4. The predictor set of variables that was considered significant in understanding word recognition skills in Test III included vocabulary score, high school grade point average, and the learning style variable of iconics as a mode of learning. These variables explained 51.77 percent of the variation in achievement.

5. The predictor set of variables that was considered significant in understanding comprehension skills and research/study skills in Test IV consisted of vocabulary score and the learning style variables of reading and iconics as modes of learning. These variables explained 41.55 percent of the variation in achievement.

6. The predictor set of variables that was considered significant in an overall understanding of basic reading skills on all four criterion-referenced tests included vocabulary score, high school grade point average, reading comprehension score, and the learning style variables of reading and iconics as modes of learning, and competition as a condition of learning. These variables explained 63.44 percent of the variation in achievement.

The analyses of data revealed five predictor models for achievement on individual scores and the summative score from four criterion-referenced tests. Vocabulary was the number one predictor for four

of the five models and reading comprehension was the number one predictor for one of the models. These findings contradict the literature which revealed high school grade point average as being the number one predictor variable (Borup, 1971; Dunham, 1973; Halpin & Schaer, 1981; Hamlin, 1975; Wiviott & Pollard, 1974): however, high school grade point average was the second most powerful predictor in three of the five models.

An examination of the subscales associated with learning style revealed positive significant correlations with achievement in a basic skills course in the teaching of reading in the variables of working with things as content of learning, iconics as a mode of learning, and working with peers, setting one's own goals, and working independently as conditions of learning. Negative significant correlations occurred in working with people as content of learning, listening as a mode of learning, and clear organization and detailed information on assignments as conditions of learning.

Declared major was positively correlated with two of the criterion-referenced tests and the total score from all four tests but not considered significant in the best predictor set of variables. A positive correlation was found between the American College Test score and all four tests but ACT score did not enter the equation as significant in the best predictor set.

A positive correlation was found between attitude toward reading and all four criterion-referenced tests but did not enter the best predictor set when other variables such as learning styles were added. The model developed may serve as a more accurate predictor of preservice teacher's performance on criterion-referenced tests.

COMPETENCY MODEL FOR PRESERVICE TEACHERS' PERFORMANCE IN A BASIC SKILLS COURSE IN THE TEACHING OF READING

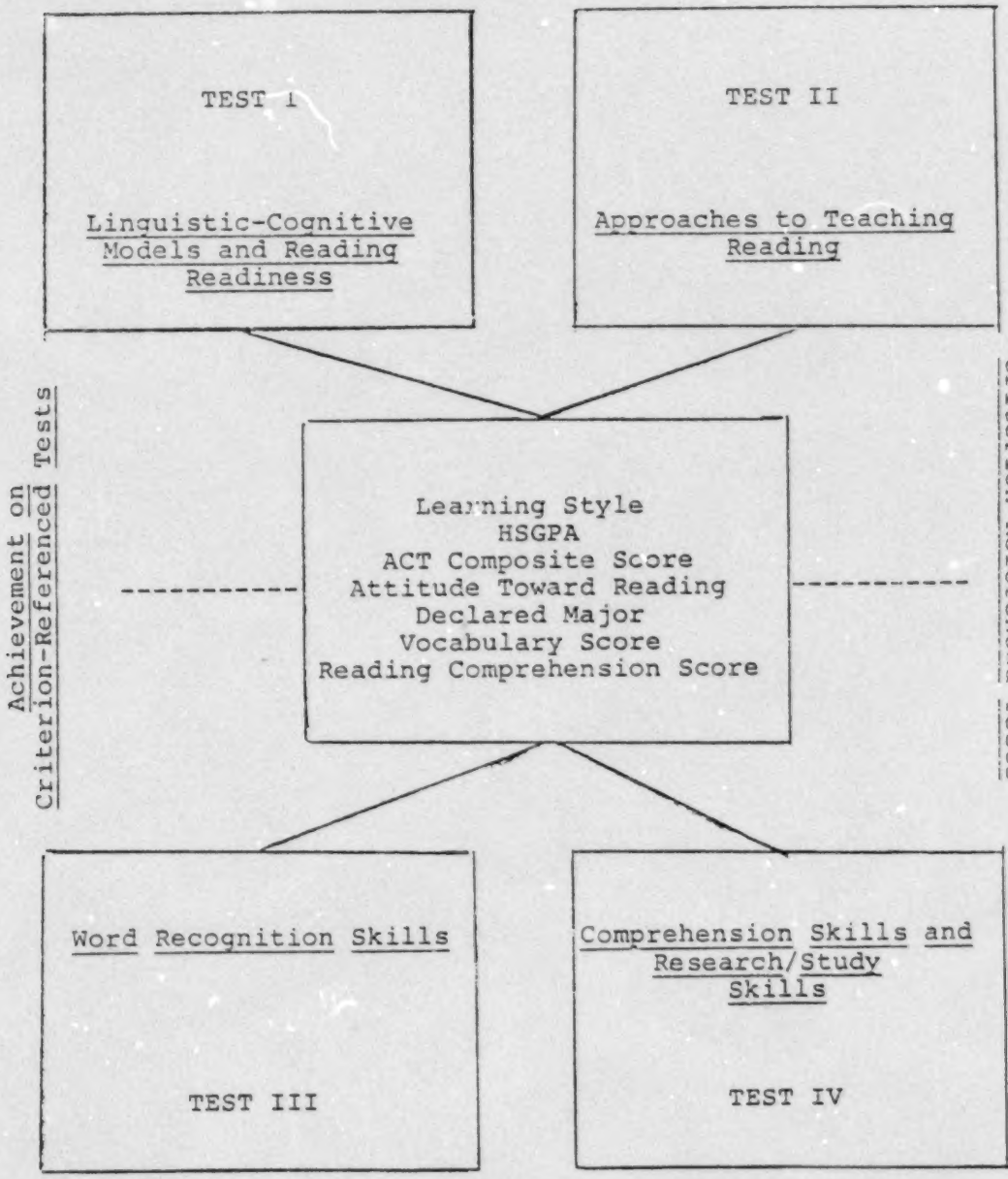

Table 1

Number and Percentage of Subjects by Major

Major	n	Percentage
Elementary Education	35	50.0
Special Education	8	11.4
Other Majors	27	38.6
TOTAL	70	100.0

Table 2

Correlation of Learning Style, Achievement, Aptitude, and Attitudinal Variables With Performance on Four Criterion-Referenced Tests

Predictor Variables	Test I r	Test II r	Test III r	Test IV r	Total Score
Content of Learning					
Number: Working With Numbers and Logic	.06	.05	.06	.07	.07
Qualitative: Working With Words or Language	-.17	-.07	-.19	-.09	-.16
Inanimate: Working With Things	.30*	.23*	.29*	.23*	.30*
People: Working With People	-.23*	-.18	-.28*	-.21	-.26*
Mode of Learning					
Listening	-.17	-.21	-.22	-.24*	-.24*
Reading	.10	.00	-.04	.17	.06
Iconics	.20	.24*	.32**	.17	.27*
Direct Experience	-.17	-.07	-.10	-.13	-.14
Conditions of Learning					
Affiliations: Working With Peers	.38**	.10	.16	.12	.12
Affiliations: Working With the Instructor	-.12	-.13	-.15	-.14	-.15
Structure: Clear Organization	-.38**	-.35**	-.31**	-.31**	-.38**
Structure: Detailed Information on Assignments	-.29*	-.12	-.11	-.16	-.20
Achievement: Setting One's Own Goals	.27*	.19	.15	.20	.23*
Achievement: Working Independently	.39**	.28*	.43**	.41**	.43**
Eminence: Competition	.09	.09	.03	.02	.07
Eminence: Discipline and Order	.03	-.08	-.17	-.17	-.13
Attitude Toward Reading	.26*	.23*	.34**	.23*	.29*
Composite Score on the ACT	.42**	.38**	.48**	.36**	.48**
Declared Major	.17	.25*	.25*	.21	.25*
High School Grade Point Average	.37**	.47**	.45**	.40**	.48**
Vocabulary Score	.60**	.50**	.59**	.52**	.64**
Reading Comprehension Score	.63**	.46**	.51**	.46**	.59**

*Significant at .05 level

**Significant at .01 level

Table 3

Means and Standard Deviations for Elementary Education, Special Education, and Other Majors on the Independent Test Scores and the Total Score From the Four Criterion-Referenced Tests

Test Scores	Elementary Education			Special Education			Other Majors		
	N	$\bar{X}$	S.D.	N	$\bar{X}$	S.D.	N	$\bar{X}$	S.D.
Test I	35	82.29	8.66	8	78.72	17.44	27	79.00	9.58
Test II	35	81.11	6.02	8	77.75	14.58	27	77.08	7.16
Test III	35	76.43	9.15	8	73.62	13.00	27	70.18	12.68
Test IV	35	78.97	6.82	8	76.25	11.80	27	75.85	6.02
TOTAL SCORE	35	79.70	5.67	8	76.44	13.10	27	75.52	7.62

Table 4

Variables Related to Performance of Preservice Teachers on Test I (Linguistic-Cognitive Models and Reading Readiness)

Predictor Variables	R	R^2	R^2 Change	r	df	F
Reading Comprehension Score	.6270	.3931	.3931	.63	1,68	9.04**
Vocabulary Score	.6913	.4779	.0848	.60	1,67	12.61**
Modes of Learning: Reading	.7253	.5261	.0481	.10	1,66	8.82**
High School Grade Point Average	.7450	.5550	.0289	.38	1,65	2.03
Conditions of Learning: Setting One's Own Goals	.7581	.5747	.0197	.27	1,64	2.95
Mode of Learning: Iconics	.7696	.5923	.0176	.20	1,63	2.81
Content of Learning: Inanimate (Working With Things)	.7764	.6028	.0105	.30	1,62	1.70
Conditions of Learning: Eminence (Discipline and Order)	.7827	.6126	.0098	-.35	1,61	1.54
TOTAL PREDICTOR SET	.7827	.6126			8,61	12.06**

**Significant at .01 level

Table 5

Variables Related to Performance of Preservice Teachers on Test II (Approaches to Teaching Reading)

Predictor Variables	R	R^2	R^2 Change	r	df	F
Vocabulary Score	.4986	.2486	.2486	.50	1,68	5.78*
High School Grade Point Average	.5931	.3518	.1032	.47	1,67	6.97*
Reading Comprehension Score	.6284	.3948	.0430	.46	1,66	2.90
Conditions of Learning: Structure (Clear Organization)	.6382	.4073	.0124	-.35	1,65	3.87
Conditions of Learning: Affiliation (Working With Instructor)	.6500	.4226	.0153	-.13	1,64	3.04
Conditions of Learning: Achievement (Working Independently)	.6564	.4308	.0082	.28	1,63	2.50
Conditions of Learning: Eminence (Competition)	.6668	.4446	.0138	.09	1,62	2.38
Direct Experience	.6745	.4549	.0103	-.07	1,61	2.50
Listening	.6841	.4680	.0131	-.21	1,60	1.47
TOTAL PREDICTOR SET	.6841	.4680			9,60	5.86*

*Significant at .05 level

Table 6

Variables Related to Performance of Preservice Teachers on Test III (Word Recognition Skills)

Predictor Variables	R	R^2	R^2 Change	r	df	F
Vocabulary Score	.5897	.3477	.3477	.59	1,68	12.15**
High School Grade Point Average	.6499	.4224	.0747	.45	1,67	6.31*
Reading Comprehension Score	.6804	.4629	.0405	.51	1,66	2.68
Content of Learning: Working With People	.6988	.4883	.0254	-.28	1,65	2.27
Conditions of Learning: Eminence (Competition)	.7111	.5057	.0174	.03	1,64	3.47
Mode of Learning: Iconics	.7195	.5177	.0120	.32	1,63	4.59*
Mode of Learning: Reading	.7358	.5414	.0237	.04	1,62	3.20
TOTAL PREDICTOR SET	.7358	.5414			7,62	10.45**

*Significant at .05 level
**Significant at .01 level

Table 7

Variables Related to Performance of Preservice Teachers on Test IV (Comprehension Skills and Research/ Study Skills)

Predictor Variables	R	R^2	R^2 Change	r	df	F
Vocabulary Score	.5243	.2749	.2749	.52	1,68	14.49**
Mode of Learning: Reading	.5894	.3474	.0726	.17	1,67	11.83**
Mode of Learning: Iconics	.6446	.4155	.0681	.17	1,66	5.82*
High School Grade Point Average	.6696	.4484	.0329	.40	1,65	3.27
Conditions of Learning: Eminence (Competition)	.6873	.4724	.0239	.02	1,64	2.53
Content of Learning: Inanimate (Working With Things)	.7030	.4941	.0218	.22	1,63	2.46
Attitude Toward Reading	.7112	.5058	.0116	.13	1,62	1.67
Reading Comprehension Score	.7176	.5149	.0092	.46	1,61	1.15
TOTAL PREDICTOR SET	.7176	.5149			8,61	8.09**

*Significant at .05 level
**Significant at .01 level

Table 8

Variables Related to Performance of Preservice Teachers on the Total Score From the Four Criterion-Referenced Tests

Predictor Variables	R	R^2	R^2 Change	r	df	F
Vocabulary Score	.6369	.4056	.4056	.64	1,68	17.68**
High School Grade Point Average	.6982	.4874	.0818	.48	1,67	7.11**
Reading Comprehension Score	.7475	.5588	.0714	.59	1,66	4.14*
Mode of Learning: Reading	.7653	.5857	.0269	.06	1,65	10.97**
Mode of Learning: Iconics	.7865	.6186	.0329	.27	1,64	5.33*
Conditions of Learning: Eminence (Competition)	.7965	.6344	.0158	.07	1,63	5.25*
Content of Learning: Inanimate (Working With Things)	.8065	.6505	.0161	.30	1,62	1.89
Conditions of Learning: Affiliations (Working With Peers)	.8121	.6595	.0090	-.15	1,61	2.53
Conditions of Learning: Structure (Clear Organization)	.8190	.6708	.0114	-.38	1,60	2.07
TOTAL PREDICTOR SET	.8190	.6708			9,60	13.58**

*Significant at .05 level
**Significant at .01 level

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